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Having It All: Vast Data Networks Near

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New York Times Service

NEW YORK — The development of a U.S. data network will allow users of personal computers to tap sources as large as the Library of Congress or receive their own personalized newspapers.

Several innovations have already demonstrated that searching vast data bases can be easier than consulting a card catalogue, and not nearly as difficult or expensive as computer searches today.

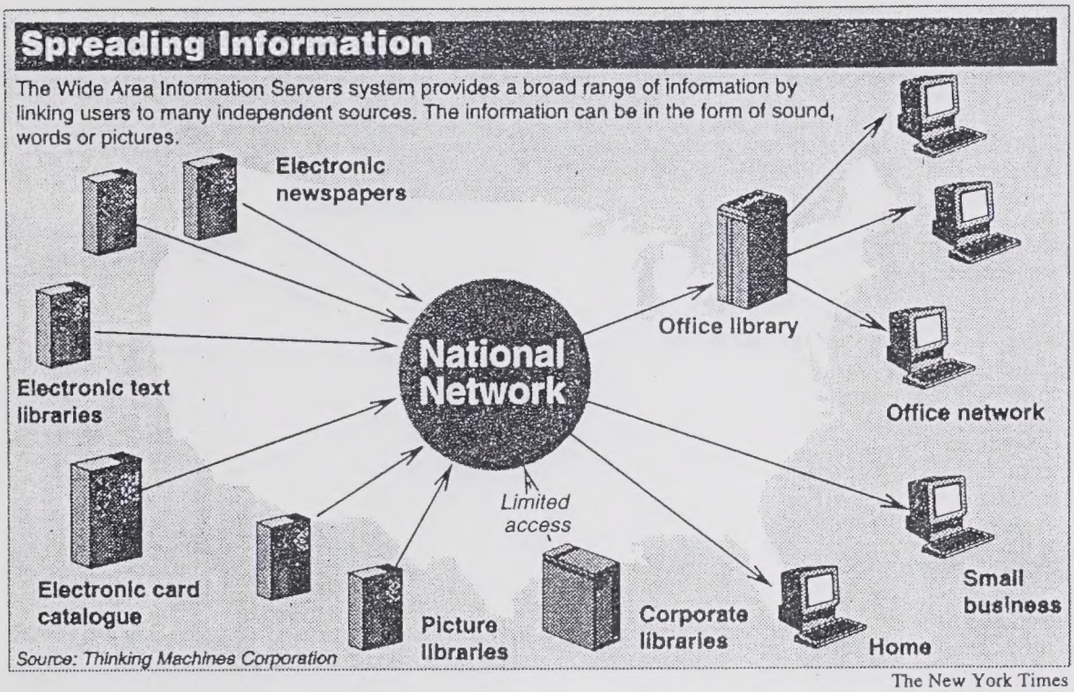
Users with minimal computer skills would soon be able to search through several terabytes of information — several trillion characters of text — in seconds. The Library of Congress, with 80 million items, contains an estimated 25 terabytes of information.

Already an experimental computer library has linked 150 universities to 40 sources of information, ranging from National Institutes of Health data to corporate documents and Shakespeare's plays.

New software allows users to browse or zero in.

As methods of retrieving information are standardized and perfected, industry executives and computer scientists say, thousands of new services, ranging from electronic newspapers to the computer equivalent of free public libraries, will blossom.

"Everyone is realizing how important it is to get into the mass market for information," said Thomas Koulopoulos, president of Delphi Consulting Group, a Boston market-research firm.


Spreading Information
The Wide Area Information Servers system provides a broad range of information by linking users to many independent sources. The information can be in the form of sound, words or pictures.
Electronic newspapers
Electronic text libraries
National Network
Office library
Office network
Limited access
Electronic card catalogue
Picture libraries
Corporate libraries
Home
Small business
Source: Thinking Machines Corporation

The New York Times

Such ready access to huge amounts of computerized information has been the dream of many, but a lack of computing power, effective software and high-speed digital networks stalled progress.

If many of the technical problems are being solved, major business and political disputes remain.

The industry has yet to find ways to protect and charge for intellectual property in a computer network.

To encourage progress, Thinking Machines Corp., a Cambridge, Massachusetts, computer manufacturer, has made its software free.

Some companies, like Dow Jones Corp., that already provide computerized information over telephone lines, have taken part in developing the new computer library.

In 1989, Thinking Machines enlisted the support of Dow Jones, Apple Computer Inc. and the KPMG Peat Marwick accounting and consulting firm to design the computer library, called Wide Area Information Servers, or WAIS.

The system permits computer users to quickly search a huge volume of information even if it is stored at several distant locations.

While current systems like Dialog and Nexis require users to specify precisely, the new system can respond to inferences. It presents a sample list of documents. The user chooses one or several, and a feedback program presents other documents most like the ones selected.

"This solves the problem of how to get to the information you need, getting not too much and not too little," said Esther Dyson, editor of Release 1.0, a computer industry newsletter.

A computer user may need to

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DATA: *Information Networks in the U.S. Are Expanding by Terabytes*

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call seven or eight separate data bases depending on the information needed.

The WAIS system lets users of Apple personal computers harness a network of Thinking Machines supercomputers and smaller computers to search data bases stored by Dow Jones, KPMG and several corporations and universities.

Users can also read electronic mail, enter their corporate electronic libraries and summon up a wide variety of documents, newspapers and magazines.

At Thinking Machines, the WAIS system serves as a corporate memory, allowing employees to retrieve memos, documents and other internal information.

In 1989, the United States had fewer than 60,000 users in the market for software that allows the rapid retrieval of computerized text. By the next year, total sales were about $120 million. The Delphi Consulting Group expects the market to grow to 160,000 users and $235 million by 1992.

Apple has its own electronic-library project, borrowing its name, Rosebud, from the movie "Citizen Kane." The project is based on WAIS, but adds features including the ability for a user to develop a personalized electronic newspaper.

Rosebud uses special programs, called reporters, that allow customers to specify the information and news they want to retrieve from WAIS daily.

"Information retrieval technology is starting to spread from supercomputers all the way down to personal computers," said Brewster Kahle, a Thinking Machines scientist .